WASHINGTON DEPARTMENT OF FISH & WILDLIFE
LYONS FERRY COMPLEX

2011-12 Annual Performance Report
to
Lower Snake River Fish and Wildlife Compensation Plan

December 2012

Washington Department of FISH AND WILDLIFE

LOWER SNAKE RIVER COMPENSATION PLAN
Hatchery Program

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BACKGROUND

The Lower Snake River Fish and Wildlife Compensation Plan (LSRCP), was approved by the Water Resources Development Act of 1976, PL 94-587, Section 102. The LSRCP was prepared and submitted in compliance with the Fish and Wildlife Coordination Act of 1958, PL 85-624, to mitigate for the losses of fish and wildlife caused by construction and operation of the four dams and locks on the lower Snake River.

The Secretary of the Army, acting through the Chief of Engineers, was authorized to implement the LSRCP and to construct Lyons Ferry and Tucannon Fish Hatcheries, Dayton Pond, Curl Lake, and Cottonwood Satellite Facilities. Upon completion the Secretary of the Army was authorized to turn ownership of these hatcheries and satellite facilities over to the U.S. Fish and Wildlife Service.

This Cooperative Agreement is established to facilitate the cooperation of the U.S. Fish and Wildlife Service and Washington Department of Fish and Wildlife in accomplishing the purposes and objectives of the LSRCP, primarily within the state of Washington. It provides for specified interchange of services, personnel, equipment, facilities and funds in order to accomplish LSRCP objectives through operation and maintenance of the hatcheries and satellite facilities.

WDFW will operate and maintain the aforementioned fish facilities with the goal of rearing sufficient numbers of fish to return 18,300 fall Chinook, 1,152 spring Chinook and 4,656 steelhead adults back to the Snake River basin and rear 90,000/lbs. of catchable trout to compensate for lost angler opportunities in the lower Snake River project.

PROJECTS

This report summary includes four (4) projects that were funded under the agreement by LSRCP and WDFW for the period October 1, 2011 to September 30, 2012. For the purpose of reviewing overall fish production goals and achievements, this report includes the Lyons Ferry and Tucannon Hatchery projects as one deliverable. Interaction between WDFW, LSRCP, and the co-managers in the Snake River Basin provided the policy and guidelines for production and operations. Individual budgeted projects were as follows:

Lyons Ferry Complex Administration

Lyons Ferry Fish Health

Lyons Ferry Fish Hatchery

Tucannon Fish Hatchery

I. Lyons Ferry Complex Administration

Objective 1: Supervise, manage policy, and administratively oversee operations, while cultivating a safe and productive work environment at the Lyons Ferry Hatchery, the Tucannon Hatchery, the Cottonwood Satellite Facility, the Dayton Pond Satellite Facility, and the Curl Lake Satellite Facility.

Deliverable: Safety compliance and work productivity emphasized. Oversight on USFWS Safety and Environmental Audits during FFY-11. Operational issues were addressed relative to multiple electrical failures and subsequent repairs. Subsequent corrections have been completed in FFY-12 and will continue in FFY-13.

Objective 2: Oversee facility operations with the goal of rearing sufficient numbers of fish to return 18,300 fall Chinook, 1,152 spring Chinook and 4,656 steelhead adults back to the Snake River basin and rear 86,000/lbs. of catchable trout to compensate for lost angler opportunities in the lower Snake River project.

Deliverable: Adult collection goals were achieved to meet the production objectives of all stocks and species. See the 2011-12 Lyons Ferry Complex Production Summary in Section V.

Objective 3: Maintain all appropriate permits necessary for operations, including any and all ESA related items.

Deliverable: All appropriate permits were renewed for operational compliance, including: Public Water Source through Dept. of Health; NPDES for Cottonwood AF, Lyons Ferry and Tucannon Hatcheries; U.S. Army Corps access approval for adult collection at Lower Granite Dam; NOAA extension on Section 10 permit #1530 for collection of hatchery broodstock at LGR.

Objective 4: Ensure and oversee appropriate maintenance of all facilities and equipment.

Deliverable: Maintenance of all facilities and equipment performed per the objective. See Section IV, 2011-2012 PERSONNEL/PURCHASES/MAINTENANCE, for a review of all activities.

Objective 5: Manage policy and procedures to meet annual adult fish escapement and juvenile fish rearing goals, as described in a NOAA Fisheries approved HGMP.

Deliverable: All policy and procedures implemented in meeting adult fish escapement and juvenile fish rearing goals, including: second year discontinuation of aquamycin treatment on yearling fall Chinook released on-station at LFH; Implementation of adult trapping protocols, as provided by Fish management and RM&E relative to origins and run timing.

Objective 6: Oversee and ensure the development of an Annual Operations Plan for LSRCP facilities and production in Washington.

Deliverable: The 2012-13 AOP was developed. Assistance provided by all of the co-managers during the AOP draft meeting which occurred on August 29 and 30, 2012 in Dayton, WA.

Objective 7: Oversee the fish marking program at all LSRCP facilities in Washington.

Deliverable: ***All marking and tagging events were coordinated by hatchery staff leads (HS-3's), with guidance from the complex manager and HS-4's. The spring and summer tag orders were submitted by complex manager and RM&E staff to the LSRCP for purchase discount and timely delivery. Marking and tagging was performed by Bio Mark and WDFW M&T Unit, utilizing the automated trailer for the majority of the marking and tagging events.***

Objective 8: Schedule all fish transportation associated with the LSRCP program in Washington.

Deliverable: ***All transportation events were coordinated by hatchery staff leads (HS-3's), with guidance from the complex manager and HS-4's. WDFW Construction and Maintenance assisted in fish hauls to Captain John Rapids (fall Chinook yearlings), Cottonwood AF (Wallowa steelhead), Pittsburgh Landing (fall Chinook yearlings) and Walla Walla River (LF-steelhead direct release). All other fish hauls performed by LFH and TFH staff, including adult hauls (w/exception of Touchet steelhead adults, as hauled by RM&E staff).***

Objective 9: Maintain real property and personal property inventories for all facilities and equipment.

Deliverable: ***Successfully completed. All real property and personal property inventories were audited by WDFW Financial Services Division. All items were accounted for.***

II. Lyons Ferry Fish Health

WDFW's Lyons Ferry complex fish health mission is to ensure and protect the health and productivity of fish cultured at Lyons Ferry (LF) complex facilities. All fish production at LF complex is conducted according to the Washington Co-managers Salmonid Disease Control Policy. The Lyons Ferry complex fish health program is staffed locally with a Fish Health Specialist. The WDFW Olympia fish health lab performs virology, bacteriology and parasitology testing on samples submitted.

Objective 1: The Fish Health Specialist will visit the Lyons Ferry Hatchery and the Tucannon Hatchery once a month to monitor fish health. During each visit, fish will be inspected and production and mortality records will be reviewed.

> ***Deliverable:*** ***The fish health specialist visited Lyons Ferry and Tucannon at least monthly during the past year. During the visit, fish were inspected and mortality records were reviewed.***

Objective 2: Respond to all fish disease outbreaks at all Lyons Ferry Complex facilities to diagnose problem and recommend treatment as needed. The Fish Health Specialist will direct the use of drugs and chemicals in a safe, effective and legal manner. The Fish Health Specialist will also monitor the use of any new drug treatments at Lyons Ferry Complex facilities under the USFWS – Aquatic Animal Drug Approval Partnership. A

> ***Deliverable:*** **In some case, fish disease problems required treatment. The fish health specialist diagnosed the problem and recommended treatments at that time. Two drugs, chloramines-T and erythromycin were administered under Investigational New Animal Drug (INAD) permit.**

Objective 3: All Chinook and steelhead broodstocks will be tested for viral pathogens. Ovarian fluid and kidney/spleen samples from each stock will be tested for the viral pathogens at a minimum of the 5% assumed pathogen prevalence level.

> ***Deliverable:*** ***All broodstocks were sampled for viral pathogens as shown in the following table. Infectious hematopoietic necrosis virus was detected in the Tucannon stock summer steelhead. Progeny from negative and positive IHNv females are being reared with no IHN outbreaks to date.***

Table x. Broodstock viral testing in 2011 – 2012.

Location	Date	Species-Stock	No. OF	No. KS	Results
Lyons Ferry	11-15-11	CHF-Snake River	60	60	Negative
Lyons Ferry	01-16 to 02-06-12	SS-Lyons Ferry	103	60	Negative
Cottonwood Pond	03-20 to 04-03-12	SS-Wallowa	120	60	Negative
Lyons Ferry	03-19 to 04-17-12	SS-Touchet River	17	17	Negative
Lyons Ferry	04-02 to 05-01-12	SS-Tucannon River	17	17	IHNv
Lyons Ferry	09-06 to 09-12-11	CHS-Tucannon River	60	60	Negative

OF = ovarian fluid, KS = kidney/spleen

Objective 4: All Chinook stocks will be tested for bacterial kidney disease with ELISA assay.

Deliverable:

For the Tucannon spring Chinook, BKD prevalence was low with 90.7% Below-Low (see following table). No segregation or destruction efforts were employed with the Tucannon spring Chinook.

For the Snake River fall Chinook, BKD prevalence was low with 99.3% Below-Low females (see following table). Progeny of Below-Low BKD females were selected for the yearling programs. Progeny of Below-Low and Low BKD females were selected for shipment to IDFG and ODFW. Progeny of all other females were utilized in the sub-yearling programs.

Table x. BKD-ELISA testing of female chinook broodstocks at Lyons Ferry Hatchery in 2011.

Species-Stock	No. Tested	Below Low		Low		Mod		High	
		No	%	No	%	No	%	No	%
CHF - Snake R.	904*	898	99.3%	5	0.6%	02	0%	1	0.1%
CHS - Tucannon R.	86	78	90.7%	7	8.1%	0	0%	1	1.2%

Below-Low = < 0.10, Low = 0.11 - 0.199, Mod = 0.2 - 0.45, High= > 0.45

*250 fish tested by ODFW

Objective 5: The Fish Health Specialist will recommend specific health management tools and strategies for all spawning and production at Lyons Ferry Complex facilities.

> **Deliverable:** ***Specific fish health management were employed with bacterial gill disease (BGD), bacterial kidney disease (BKD) and infectious hematopoietic necrosis (IHN). With BGD in sub-yearling fall chinook, low rearing densities were followed. BKD preventive measures for chinook included erythromycin injection of female broodfish, screening and segregation of progeny, low rearing densities, along with feeding of erythromycin medicated rations. With IHN in steelhead, female broodfish were screened and segregation and/or destruction of progeny of IHN positive females were employed.***

Objective 6: The Fish Health Specialist will be consulted during all fish production planning.

> ***Deliverable: The fish health specialist was involved in fish production planning include annual operating plan development.***

Objective 7: The Fish Health Specialist will communicate and coordinate with co-managers and cooperators concerning issues of fish disease control and prevention at the Lyons Ferry Complex and facilities receiving fish from the Lyons Ferry Complex.

> ***Deliverable: Any major fish health problems at Lyons Ferry complex are communicate to co-managers and cooperators. One avenue of communication is the semi-annual Pacific Northwest Fish Health Protection Committee meetings.***

Objective 8: The Fish Health Specialist will maintain an appropriate database pertaining to all fish health visits for disease identification and treatment, pre-liberation examinations, and broodstock testing. This data log should be readily available at the Lyons Ferry Complex.

> ***Deliverable: The fish health specialist maintain databases with fish health inspection, broodstock viral test, Chinook broodstock BKD-ELISA test and Myxobolus cerebralis (whirling disease parasite) tests.***

Objective 9: The Fish Health Specialist will write the fish health section of the Lyons Ferry Complex annual performance report.

Deliverable:

2011-2012 Fish Health Review – Major Fish Health Problems

The fish health problems at Lyons Ferry and Tucannon hatcheries were:

Bacterial coldwater disease (BCWD) was observed in Spokane stock rainbow trout at Lyons Ferry and Tucannon hatcheries and in Lyons Ferry, Wallowa and Touchet stock steelhead at Lyons Ferry Hatchery. All fish were successfully treated with Aquaflor (florfenicol) medicated feed.

The external parasite, Trichodina sp. was found on catchable Spokane stock rainbow trout rearing in the earthen pond in late April 2012 at Tucannon Hatchery. The fish were successfully treated with a 24 hour formalin drip.

Bacterial kidney disease caused minor mortality in one raceway of sub-yearling Snake River fall Chinook at Lyons Ferry Hatchery in late May2012. The fish were released as scheduled.

III. Lyons Ferry and Tucannon Hatcheries

WDFW will operate and maintain the Lyons Ferry and Tucannon Hatcheries and the associated Satellite Facilities as part of the Lower Snake River Compensation Plan.

Objective 1: Proposed spawning, fish marking, and fish production at Lyons Ferry Complex facilities for FY2011 is presented in Table 1. WDFW staff will operate these facilities to meet the goals listed in the Production Summary Table.

Deliverable: Completed. See the 2011-12 Production Summary table in Section 5 for actual broodstock collection, egg takes, rearing and release numbers.

Objective 2: WDFW staff will maintain all Lyons Ferry Complex facilities and equipment in a safe and operable condition.

Deliverable: Successfully completed.

Objective 3: WDFW staff will directly schedule and oversee all fish marking at Lyons Ferry Complex facilities.

Deliverable: Successfully completed.

Objective 4: WDFW staff will directly schedule and oversee all transportation of fish reared at the Lyons Ferry Complex for liberation or transfer.

Deliverable: Successfully completed.

Objective 5: WDFW staff will participate in the development of an Annual Operations Plan for LSRCP programs at the Lyons Ferry Complex.

Deliverable: ***Completed and implemented. New procedures were approved by co-manager agreement for this AOP cycle.***

Objective 6: WDFW staff will maintain in detail, all data associated with each fish production program at the Lyons Ferry Complex. This data shall be readily accessible at the Lyons Ferry Complex.

Deliverable: ***Successfully completed. All fish production information was entered into the WDFW database, Fish Books. Production reports were submitted to LSRCP by the monthly deadlines.***

IV. 2011-2012 PERSONNEL/PURCHASES/MAINTENANCE

LYONS FERRY HATCHERY

PERSONNEL:

1. Eben Nesje was hired into the new MM2 position.
2. Jon Lovrak resigned from WDF&W effective the 15th of September.
3. Doug Maxey was assigned the Acting Complex Manager position effective September 16, 2012.
4. Gary Griffen was promoted to MM3 status.

SIGNIFICANT PURCHASES:

1. New standpipes for north troughs.
2. New oxygen meters for planting trucks.
3. Multiple vehicle tire replacement.
4. Ultrasound scanner – purchased by LSRCP directly.
5. BP 25 fish pump – purchased by LSRCP directly – excellent pump.

PROJECTS:

1. Pump #6 was rebuilt per preventative maintenance schedule.
2. New roof on gas shack.
3. Visitors Center re-beautification project and picnic table.
4. Replacement of some of the Distribution Tower Koch Rings.
5. Began complete rebuild of the 5,000 gal. fish tanker O2 system.
6. Modifications to our existing Electro Narcosis system for handling steelhead in a manner to be able to return adults back to the stream or food bank utilization.

HOUSING MAINTENANCE:

1. New kitchen remodels for residences #2 through #8.
2. New bathroom cabinets for residences #2 through #8.
3. New heat pump for residence #1.
4. New hardwired smoke detectors were installed for all eight residences.

SIGNIFICANT EVENTS:

1. Start of the Marmes pump station electrical rebuild with the bid awarded to CTA Architechs Engineers.
2. Start of the Lyons Ferry medium voltage electrical underground wire replacement with the bid awarded to Michels Power.

TUCANNON FISH HATCHERY

PERSONNEL:

1. Shawn Magee transferred to the Kalama Falls Hatchery. Scott Breslin was hired as a FHS1 in training in August replacing Shawn.
2. Dave Clark (FHS2) was off for three months on a L&I hand injury.
3. Doug Maxey moved off hatchery housing to his new house approximately five miles from the Tucannon Hatchery. Mike Manky (FHS3) moved into the vacant residence.
4. Mike Manky attended the Annual Fish Culture Conference in Victoria BC.

SIGNIFICANT PURCHASES:

1. Wood / Metal band saw for shop.
2. Aluminum Row Boat.
3. Updated Fish Pump head for existing Neilson fish pump.
4. Sun shade covering for one half or three round ponds.
5. Electronic fish scale.

PROJECTS:

1. Installed strings over the East and West Raceways to prevent bird predators from entering the area.
2. Installed new valves in trough room.
3. Flynn's Electric ran a 60 amp service from the shop to the new storage building.
4. Completed installation of lights and receptacles in new storage building.
5. Sheeted inside of new storage building with 5/8" sheeting.
6. Modifications to surface water delivery system for round ponds.
7. Window replacement (2) in hatchery building.

HOUSING MAINTENANCE:

1. New vinyl flooring in kitchen and bathrooms in residence #2.
2. New kitchen backsplash in residence #1.
3. Window replacement (3) in residence #2.
4. Repairs made to residence #1 heat pump. Technician suggests looking at replacement of unit in the future.
5. New hardwired smoke detectors were installed for the two residences.

SIGNIFICANT EVENTS:

1. Received a USFWS bridge inspection on the Tucannon Hatchery entrance bridge.

DAYTON ACCLIMATION FACILITY

1. Installed a tarp and custom aluminum frame structure over intake belt screen to reduce or eliminate winter weather problems involving pond water delivery.

COTTONWOOD ACCLIMATION FACILITY

1. Staff installed skirting around base perimeter of bunkhouse to prevent winter weather exposure and rodent issues from occurring.
2. Pack Rat problems in the bunkhouse. Worked on eradication.
3. A new well pump and delivery pipe within the well case was replaced.

V. Lyons Ferry Complex 2011-2012 Production Summary

Stock / Specie	Brood Year	Brood Stock Collection	Egg Take	Transfer / Release	Size (fpp)	Lbs.	Marks / CWT / Elastomer[a]	PIT tags[a]
Tucannon Spring Chinook	2010[1]	N\A	N\A	104,326 97,259	14.3 6.9	7296 14096	201,585 CWT/VIE	25,000
	2011	165	325,700	231,800	35.5	6532	231,800 CWT	25,000
	2012[2]	170	269,500	30,000	Eyed eggs	15	N/A	N/A
	GOALS	170	260,000	225,000	9-15	20,000	225 CWT/VIE	25,000
Snake River Fall Chinook[b]	2010	N/A	N/A	988,200	10-12	86,494	483,165 AdCWT, 508,975 CWT	85,965
	2011	2,699	4,596,957	1,821,700 1,785,600	50-75 Eyed eggs	27,708 1,488	619,812 AdCWT, 270,580 CWT N/A	124,639 N/A
	GOALS	3,000	4,900,000	1,800,000 1,728,000 900,000	50-75 eyed eggs 10-12	26,667 1,330 82,500	700k AdCWT, 300k CWT[b] 600k AdCWT, 600k AD[b] 435k AdCWT, 465k CWT	123,266 423,916 85,000
Lyons Ferry Summer Steelhead	2011[4]	1,650	528,205	137,841 89,322 102,177	4.3 4.4 4.4	32,370 20,300 23,235	116k AD, 21k AD-LV-CWT 64k AD, 25k AD-LV-CWT 80k AD, 22k AD-LV-CWT	6,000 6,000 6,000
	2012	1,650	603,823	126,000 85,000 100,000	On Hand	On Hand	105k AD, 21k AD-LV-CWT 64k AD, 21k AD-LV-CWT 80k AD, 20k AD-LV-CWT	6,000 6,000 6,000
	2013	0	N/A	N/A	N/A	N/A	N/A	N/A
	GOALS	1,650[c]	460,000	160,000 85,000 100,000	4.5 4.5 4.5	35,555 18,889 22,222	140k AD, 20k AD-LV-CWT 65k AD, 20k AD-LV-CWT 80k AD, 20k AD-LV-CWT	6,000 6,000 6,000
Tucannon Summer Steelhead	2011[5]	N/A	N/A	51,124	4.6	11,114	51,124 CWT only	15,000
	2012	50	93,065	59,065	On Hand	On Hand	59,065 CWT only	15,000
	GOALS	40	90,000	75,000	4.5	16,667	75k CWT only	10,000
Touchet Summer Steelhead								
	2011	31	74,408	54,386	4.6	11,862	54,386 CWT only	5000
	2012	31	81,555	39,291	On Hand	On Hand	39,291 CWT only	5000
	GOALS	36	65,000	50,000	4.5	11,111	50k CWT only	5,000

Lyons Ferry Complex 2011-12 Production Summary (cont'd)

Stock / Specie	Brood Year	Brood Stock Collection	Egg Take	Transfer / Release	Ave. Size (fpp)	Lbs.	Marks / CWT / Elastomer[a]	PIT tags[a]
Wallowa Summer Steelhead	2011[7]	500	305,070	177,102	4.8	36,854	155k AD, 22k AD-LV-CWT	6,000
	2012	500	305,070	206,012	On Hand	On Hand	185k AD, 21k AD-LV-CWT	6,000
	GOALS	120	240,000	200,000	4.5	44,444	180k AD, 20k AD-LV-CWT	6,000
Spokane Rainbow	2010[8]	N/A	N/A	211,129 3,305 [e/f] 4,178[g]	2.66 0.95 0.61	79,484 3,432 6,863	None	None
	2011[8]	N/A	N/A	185,973 2,650 [e/f] 4,201[g]	On Hand On Hand On Hand	On Hand On Hand On Hand	None	None
	GOALS	**N/A**	278,000	234,500 4,950[d] 1,650[e] 1,500[f] 4,000[g]	2.5- 3.0 3.0 1.0 0.67 0.67	78,167 1,650 1,650 2,239[f] 6,000[g]	None	None

[a] Total marks and PIT tags include all juveniles reared in Snake River Basin for program release goals.

[b] 1.0 million fall Chinook transferred/released by WDFW and co-managers are unmarked. Eyed egg transfers are marked at Irrigon and Oxbow.

[c] To obtain CWT recoveries 1,650 adults are collected; actual number of adults needed for eggtake is **212**.

[d] Rainbow for IDFG are triploids.

[e] Rainbow for Nez Perce tribe resident fish program.

[f] Mitigation jumbo trout.

[g] *The Tri State Steelheaders fund 4,000 jumbo trout for the state program which is not included in total pounds reared for mitigation.*

2011-2012 production footnotes:

[1]Short of program goal due to high egg loss.

[2]Excess eggs due to high fecundity and lower egg loss – eggs shipped to TFH for full-term rearing study.

[3]Short of eyed-egg transfer goal by 170k for IPC (Priority 17) due to lower than expected fecundity.

[4]Short of program release goals due to cold-water disease (*Flavobacterium psychrophilum*) outbreak. On-station release group is reduced.

[5]Short of program goals due to high detection of IHNV in adult females. High titers were culled/released as unfed fry.

[6] Two-year smolt releases. Fish retained for a study on survival of 2-year smolts. These were final releases from the study.

[7]Adults hauled to LFH for spawning. High detection of IHNV in adult females (46 out of 96). Ten females were collected at the Wallowa Hatchery for supplementing production goals. Short of program release goals due to cold-water disease (*F. psychrophilum*) outbreak.

[8]Short of program goals due to cold-water disease (*F. psychrophilum*) outbreak. Final year of 160k spring fry releases into NW Idaho reservoirs. **NOTE:** IHNV detected in rainbow juveniles at the Tucannon Hatchery in May. All fish were destroyed. Program was supplemented with excess juveniles from the Wells Hatchery and Spokane Hatchery (WDFW), which were reared in the interim at the Lyons Ferry.